A MODIFIED SWEEP-NET FOR SMALL INSECTS.

By George B. Riley, Columbus, Ohio

Collecting small insects with a standard sweep-net is often encumbered by the accumulation of plant debris and large, vigorous insects within the bag. Small specimens are not only subject to damage by larger individuals and herbage but are also obscured by this material. In the past, collcting thrips, leaf-hoppers, and other small to minute species has been tedious and time consuming. Large numbers of small insects can be obtained quickly and with relative ease by the use of the modified sweep-net apparatus shown in the accompanying figure.

A frame of the same size and configuration as the supporting rim of the net to be used is formed of heavy, stiff wire. Two recurved hooks of the same material are welded to the frame so that one hook will lie on either side of the net handle and reach behind and under the net rim. Three sigmoid clamps are welded to the frame at 90 degree intervals. Thus the recurved hooks grasp the net rim at the handle and the sigmoid clamps are forced over the net rim, holding the wire frame snugly against the net face. The stiff wire frame is covered with wire screen, the size of the mesh depending on the size of the species to be collected.

A much shallower net may be used with this screen than would be practical otherwise. A muslin bag 12 to 14 inches deep with non-tapered sides and a flat bottom has proven very acceptable. This short bag allows excellent illumination of the interior and the flat bottom affords a large area for inspecion. The bag tends to form a semi-flat bottomed cylinder when the handle is held horizontal. Specimens can be removed from this apparatus by swinging the screen out of the way and the ease and rapidity with which specimens can be removed permit few escapees. Use of the short bag allows rapid selection of specimens and obviates the necessity to "crawl inside the net." However, a standard or removable bottom net can be used with the screen if concentration of material is desired, as when cyanide killing jars are employed.

The jarring effect of the screen striking plants is greater than would be true of an open mouthed net. In the latter case the plant is struck only by the net rim, allowing flexion and resulting in a brushing or pushing aside of the herbage. On the other hand, the entire face of the screen acts as a barrier to plant movement, causes a shock to all the tissue encompassed by the net mouth, and results

in the dislodgement of a much higher proportion of insects than is possible with an open net. This point has been substantiated by very satisfactory collections using the screen on plants immediately after open-net sweepings had yielded few specimens. Use of this screen does not result in appreciable damage, even to delicate species such as thrips and minute Diptera.

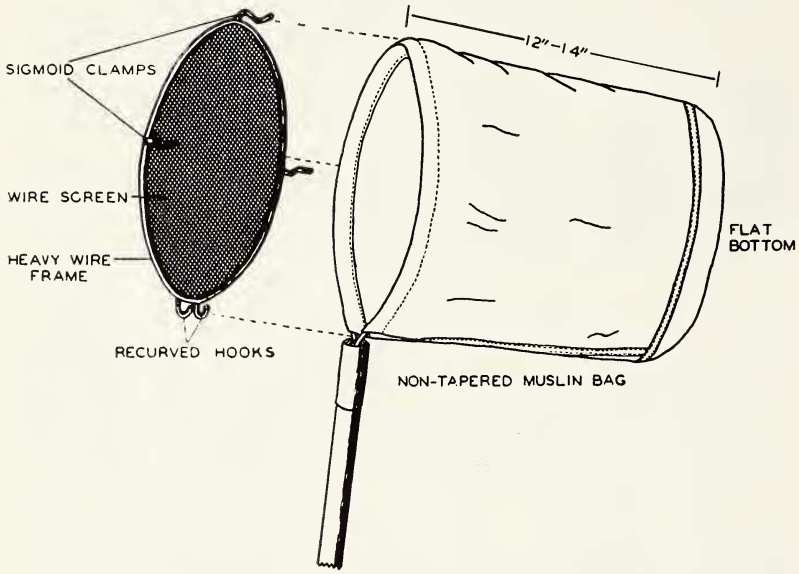

Fig. 1. Details of the modified sweep-net.

PRE-PUBLICATION NOTICE

Principles of Biological Control by Harvey L. Sweetman, the new revised and expanded edition, will appear in December 1957. It covers the broad field of biological control of plants and animals. It will acquaint the reader with life histories, habits, methods of handling, and methods for the control of insectan and other pests. It is designed to serve undergraduate and graduate students and research workers. Price about $8.50. Reserve your copy now. Wm. C. Brown Company Publishers, Dubuque, Iowa.